We claim:

1. A method of migrating an input seismic data point having an input source location and an input receiver location, a scatter point, and an image location associated therewith, the method comprising:

determining a pseudo-offset; and

mapping the seismic data point to the image location based at least in part on the pseudo-offset.

2. The method of claim 1, further comprising determining a pseudo-source and a pseudo-receiver.

3. The method of claim 2, wherein said pseudo-source and said pseudo-receiver are not collocated.

4. The method of claim 3, wherein said pseudo-offset further comprises a distance between a pseudo-source and the image location plus a distance between a pseudo-receiver and the image location.

5. The method of claim 1, further comprising determining a pseudo ray parameter.

6. The method of claim 5, wherein said determining a pseudo ray parameter further comprises determining a pseudo ray parameter dependant at least in part upon the ray parameter down from the input source location to the scatter point and the ray parameter up from the scatter point to the input receiver location.

7. The method of claim 6, wherein said determining a pseudo ray parameter further comprises determining a pseudo ray parameter which is constant from a pseudo-source to the scatter point and from the scatter point to a pseudo-receiver.

8. The method of claim 2, wherein said determining a pseudo-offset further comprises determining an input travel time associated with the input source location, the input receiver location, and the scatter point.

9. The method of claim 8, wherein said determining a pseudo-offset further comprises determining a pseudo travel time from the pseudo-source to the pseudo-receiver via the scatter point.

10. The method of claim 9, wherein the pseudo travel time and the input travel-time are essentially equivalent.

11. The method of claim 1, further comprising migration stacking.

12. The method of claim 11, wherein said migration stacking further comprises determining a moveout travel time.

13. The method of claim 12, further comprising summing the data point along the moveout travel time.

14. The method of claim 12, wherein said moveout travel time is essentially same as the pseudo travel time.

15. A method of migration of a seismic data point having an input source location, an input receiver location, and a scatter point associated therewith, the method comprising:

determining a projected source location;

determining a projected receiver location;

mapping the seismic data point from an input travel time to a projected travel time;

determining a pseudo-offset based on the projected travel time; and

mapping the data point to the pseudo-offset.

16. The method of claim 15, wherein said projected source location is essentially equivalent to the input source location.

17. The method of claim 15, wherein said projected receiver location is essentially equivalent to the input receiver location.

18. The method of claim 15, further comprising determining a raypath from said input source location to said input receiver location.

19. The method of claim 18, wherein said determining a projected receiver location further comprises determining a projected receiver location along the determined raypath.

20. The method of claim 18, wherein said determining a projected source location further comprises determining a projected source location along the determined raypath.

21. The method of claim 15, further comprising determining a pseudo-source and a pseudo-receiver.

22. The method of claim 21, wherein said pseudo-offset comprises a distance between a pseudo-source and an image location plus a distance between a pseudo-receiver and the image location.

23. The method of claim 22, further comprising determining a pseudo ray parameter.

24. The method of claim 23, wherein said determining a pseudo ray parameter further comprises determining a pseudo ray parameter dependant at least in part upon the ray parameter down from the projected source location to the scatter point and the ray parameter up from the scatter point to the projected receiver location.

25. The method of claim 24, wherein said determining a pseudo ray parameter further comprises determining a pseudo ray parameter which is constant from the pseudo-source to the scatter point and from the scatter point to the pseudo-receiver.

26. The method of claim 15, wherein said determining a pseudo-offset further comprises determining a projected travel time associated with the projected source location, the projected receiver location, and the scatter point.

27. The method of claim 26, wherein said determining a pseudo-offset further comprises determining a pseudo travel time from a pseudo-source to a pseudo-receiver via the scatter point.

28. The method of claim 27, wherein the pseudo travel time and the projected travel-time are essentially equivalent.

29. The method of claim 15, further comprising migration stacking.

30. The method of claim 29, wherein said migration stacking further comprises determining a moveout travel time.

31. The method of claim 30, further comprising summing the data point along the moveout travel time.

32. The method of claim 30, wherein said moveout travel time is essentially same as the pseudo travel time.

33. A method for performing velocity analysis on a seismic gather, the method comprising:

computing a moveout travel time based on an initial model;

computing an intermediate travel time;

mapping the gather from the moveout travel time to the intermediate travel time; and

scanning for velocities based on the intermediate travel time.

34. The method of claim 35, wherein the intermediate travel time comprises at least one scannable parameter.

35. A system for migrating an input seismic data point having an input source location and an input receiver location, a scatter point, and an image location associated therewith, the system comprising:

means for determining a pseudo-offset; and

means for mapping the seismic data point to the image location based at least in part on the pseudo-offset.

36. The system of claim 35, further comprising means for determining a pseudo ray parameter.

37. The system of claim 35, further comprising means for migration stacking.

38. A system for migration of a seismic data point having an input source location, an input receiver location, and a scatter point associated therewith, the system comprising:

means for determining a projected source location;

means for determining a projected receiver location;

means for mapping the seismic data point from an input travel time to a projected travel time;

means for determining a pseudo-offset based on the projected travel time; and

means for mapping the data point to the pseudo-offset.

39. The system of claim 38, further comprising means for determining a raypath from said input source location to said input receiver location.

40. The system of claim 38, further comprising means for determining a pseudo ray parameter.

41. The system of claim 38, further comprising means for migration stacking.

42. A system for performing velocity analysis on a seismic gather, the system comprising:

means for computing a moveout travel time based on an initial model;

means for computing an intermediate travel time;

means for mapping the gather from the moveout travel time to the intermediate travel time; and

means for scanning for velocities based on the intermediate travel time.

43. A seismic data point produced by a process of migration comprising:

determining a pseudo-offset; and

mapping the seismic data point to the image location based at least in part on the pseudo-offset.

44. A seismic data point produced by the method of migration comprising:

determining a projected source location;

determining a projected receiver location;

mapping the seismic data point from the input travel time to a projected travel time;

determining a pseudo-offset based on the projected travel time; and

mapping the data point to the pseudo-offset.